# NORTHEASTERN FOREST PEST REPORTER

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## FOREST INSECTS

The seeming unpredictability of population fluctuations of some of our well-known (and long-felt) insect pests brings an old problem into sharp focus--how to better appraise the current status of a destructive insect and to predict changes in its abundance. Closer integration of surveys and research must be achieved and the significant "unknown factors" determined (or reduced in number, at least) if we are to make appraisals and predictions with confidence and success. Certainly, consideration must be given to all biological and physical factors affecting the insect population and consequent damage, not just to the number of insects and the number or volume of host trees involved. Control is generally given as the aim of research on forest insects, but most if not all effort is put on finding out how to do it. Appraisal and prediction--the where and when--are equally important.

The timely interchange of information through the REPORTER has provided valuable data on the occurrence, relative abundance, and seasonal development of the major pests in the region. Research findings and practical applications of survey and control methods can be presented in the REPORTER also.

SPRUCE BUDWORM (Choristoneura fumiferana) The effectiveness of the 1958 control project is well shown this year by the lush new growth of balsam fir throughout the 302,000 acre area in Maine. Bare twigs behind the current year's shoots indicate the severe defoliation of the previous 2 to 3 years. An intensive survey program is being conducted again this year by entomologists of the Maine Forest Service and the Northeastern Station. Data are being obtained on the abundance of the budworm and its primary parasites at a large number of spots throughout northern Maine. All insect material is being processed at a field laboratory at Portage and at the Entomological Laboratory in Augusta. Studies

of the carryover effects, if any, on aquatic insects in streams in the 1958 control area and in adjacent untreated areas are being conducted from a field laboratory at Sinclair. Medium to high budworm populations are still present as predicted in a limited area just west of the control area in the vicinity of Portage Lake. Aerial and egg mass surveys will be conducted to delineate the areas of noticeable defoliation and to determine the potential populations in northern Maine next year. It is hoped that natural control factors will deliver the coup-de-grace to the general infestation.

The form on Virginia pine in Pennsylvania was collected at points in Perry and Bedford Counties. At Blain it was in the 3rd instar about May 21, pupating about June 2, and emerging as adults about June 15. The first U. S. National Museum record of the parasite Apanteles fumiferana was taken from a Blain specimen.

PINE SAWFLIES The European pine sawfly (Neodiprion sertifer) is continuing as a really serious pest on red pines, and occasionally Scotch, in southern New York, southern Connecticut, northern New Jersey, and northeastern Pennsylvania. Arnold T. Drooz reports that eggs were hatching in Luzerne County, Pa., on May 15. About 250 acres were sprayed with virus, with good results reported. Use of virus and other microbial sprays has great promise, particularly with sawflies. Practical application, however, must follow research. Hit-or-miss tactics with these organisms are a waste of time, effort, and money. The Virginia pine sawfly (N. pratti pratti) is generally light in southern Delaware, heaviest at one spot in Sussex County. In Maryland, the defoliation by this pest (in late April and May) was still fairly general throughout the State. The total acreage infested may be less than last year, but the pattern is the same--scattered blocks of pine severely defoliated with adjacent areas lightly infested. Large areas in Virginia and North Carolina are also under attack by this sawfly. The pitch pine sawfly (N. pratti paradoxicus) has tapered off somewhat in southern New Jersey, but it is still evident on pitch and shortleaf pines there. Another sawfly (N. pini-rigidae ?) was collected in large numbers locally at Folsom, N.J. The red-headed pine sawfly (N. lecontei) is generally abundant again this year. After the heavy infestations of the past several years in St. Lawrence County, N.Y., the red-pine sawfly (N. nanulus) has decreased to very low levels--130 acres were treated effectively with a 12 percent DDT oil solution, however. A sawfly (N. taedae ?) is present in noticeable numbers on loblolly pine in Delaware and Maryland--reported less abundant in both states than last year, but some injury noted in first-year plantings of loblolly pine in Maryland.

BALSAM WOOLLY APHID (Adelges piceae) This insect is present in previously reported areas in Vermont, New Hampshire, Maine, and New York. There is increased gout damage in the coastal areas of Maine; stem injury is heavy in some spots inland. Recognition of the aphid as a destructive pest which is causing loss in the productiveness of stands, as well as killing trees in some areas, is increasing. A study will be initiated this fall by the Beltsville Forest Insect Laboratory and personnel of the Northeastern Forest Insect Laboratory to determine whether aerial photography is a feasible method for assessing various stages of attack from the air. Federal funds were made available for a study in which the Northeastern Forest Experiment Station is cooperating with ARS and the Commonwealth Institute of Biological Control (Canada) to study the ability of an imported predator to control the balsam woolly aphid on heavily infested trees in the Penobscot Experimental Forest in Maine. A total of 15,329 Laricobius erichsonii adults have been released in two compartments. Two colonies were provided for release on Mt. Mitchell, North Carolina, where a recent heavy infestation is causing concern.

WHITE PINE WEEVIL (Pissodes strobi) Again reported throughout the region, generally light but heavy in some local spots. At this time, it appears that the weevil may be less abundant than last year when there was an upswing in the population. New York State reports this perennial pest somewhat below normal levels due, perhaps, to the low temperatures of last winter and the lack of snow cover. It was heavy on pine and fir in Butler County, Pa., in early May; reported depositing eggs on white pine in Blair County around May 15; and in Venango County white pine was 10 percent infested and Scotch pine lightly infested in the middle of June. It is light in West Virginia where formerly it has been heavy on both white pine and red spruce. In Vermont early emergence, about April 21, cut short spraying operations on 20 to 25 acres.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) Present as usual throughout the region on red and Scotch pines, this constant pest continues to damage valuable plantings. It is reported active in West Virginia. Larvae were reported in maturity and fairly abundant on red and Scotch pines in Pennsylvania in the second week of May, and pupating on red pine in Fayette County on June 9. In Maryland it was reported on Scotch pine in Anne Arundel County on June 15, and adults were 50 to 75 percent emerged in Garrett County at the same time. More than 75 percent mortality of mature larvae and pupae was reported in a tract near Accident, Md., but none in adjacent areas. The causative agent is unknown. The Eastern Shore of Maryland is again suffering moderate to heavy attacks by the Nantucket pine tip moth (Rhyacionia frustrana) in many young loblolly pine plantings, with scattered damage by the pine tip moth throughout eastern Maryland reported. Eucosma gloriola is heavy on Scotch, white, Austrian, and red pines in the Counties of Berks, Fulton, and Schuylkill in Pennsylvania. A small budworm or tip moth is reportedly attacking the tips of white pine shoots in some sections of Vermont.

PINE SPITTLEBUG (Aphrophora parallela) Reported about the same as last year with the following specific locations described. In New York it is generally light throughout the State on white and Scotch pines, heavy on white pine in Essex and Clinton Counties. In Delaware it is statewide on Virginia and loblolly pines, moderately heavy. Maryland reports the population light but extensive and the damage slight in late instars on June 23. In West Virginia it is heavy on Virginia and Scotch pines.

PINE LEAF APHID (Pineus pinifoliae) This dual-role pest is currently in its red spruce host year in northern New England and New York. A report from New York on June 23 relates that Pineus had migrated to pines in Essex and Clinton Counties, and it was heavy on white pine in St. Lawrence and Herkimer Counties.

MISCELLANEOUS INSECTS ON CONIFERS The pine needle miner (Exoteleia pinifoliella) is again reported from southern New Jersey, but this year it is apparently doing more damage than usual with spots of severe feeding on pitch pine. There is a rather local but heavy infestation in the Myles Standish State Park in Massachusetts, and Delaware reports it moderately heavy on Virginia pine in Kent and Newcastle Counties. The pine needle scale (Phenacaspis pinifoliae) reported lightly infesting a 54-year-old white pine plantation in Clinton County, N.Y., and a foxtail pine planting in Schroon, N.Y. There is an exceedingly heavy local infestation near Burlington, Vt., on white, Scotch and Mugo pines. The pine bark aphid (Pineus strobi) is reported from New York and Pennsylvania, and spruce gall aphids (Adelges spp.) are present in light to heavy infestations in various localities in New York. The balsam gall midge (Itonida balsamicola),

which is causing concern among Christmas tree growers, is reported from Vermont. Coleophora laricella, the larch casebearer, is reported from many areas in southern Pennsylvania (pupae found May 12 near Mont Alto) and is making an appearance in Vermont. The pales weevil (Hylobius pales) has fed heavily in some Christmas tree plantings in Pennsylvania, and in early May adults were reported depositing eggs on pine and fir stumps from 1958 cuttings in Franklin and Adams Counties. Heavy damage on Christmas tree plantings has also occurred in New York on Scotch and white pines.

FOREST TENT CATERPILLAR (Malacosoma disstria) Indications last year of a rising outbreak, the first in several years, of this defoliator materialized in some States. The infestation of hardwood forests is more widespread this year than last, especially in the southern reaches of the region. New England and New York, where the effects of the big infestations of 1951 to 1956 were felt, report light and very restricted occurrence; in New York it is reported only from Essex County. A note of heavy killing of the caterpillar by wilt disease comes from Laconia, N.H. In some places in Somerset and Fayette Counties, Pa., oaks, maples, and aspen were almost completely stripped, but the nearly mature larvae were then hit hard by a virus wilt so that nearly no cocooning was evident. Mature larvae were found dead and dying in mats on the trunks of sugar maples, and the large parasitic fly Sarcophaga was noted in abundance. Hatching of the larvae began around April 30 in the sugar maple groves of the area. North of these areas, in the Kooser Park-Trent and Springs-Laurel Hill-Somerset-Roxbury vicinities, very little defoliation is reported, but heavy populations exist and therefore severe defoliation could occur next year, barring unfavorable weather conditions (for the tent caterpillar!). Near Mont Alto, Franklin County, on June 10 stripping was practically complete and cocoons were abundant on the remaining understory foliage; no disease was in evidence here. Similar observations are reported from Long Mountain, south of Boil Springs, and Piney Ridge between Mt. Holly Springs and Caledonia. These may be areas of serious infestation in 1960. In West Virginia there are spots of very nearly complete defoliation, and from Petersburg east to Wardensville the defoliation is in its second year and apparently spreading. The insect has not been noted in last year's spots, but it is present in large numbers in Tucker, Hampshire, Monongalia, and Kanawha Counties. The really severe area in West Virginia is around the head of Witcher's Creek where spots on the tops of hills are completely stripped. It is reported that the parasite Sarcophaga is numerous in most areas of defoliation. Large numbers of the caterpillar have died off at the Fernow Experimental Forest at Elkins. Mention was made of the abundance of the fly here also. Hardy County suffered 80 to 100 percent defoliation of oak, maple, and various other hardwoods on 800 to 1000 acres. Pupae were abundant in West Virginia by June 19.

EASTERN TENT CATERPILLAR (Malacosoma americanum) This is a good year from the eastern tent caterpillar's point of view, too, as evidenced by quite widespread defoliation of wild cherry and fruit trees throughout the southern environs of the region. In West Virginia, emergence occurred by June 19, and the insect is statewide and exceptionally numerous in parts of Taylor, Barbour, and Monongalia Counties. As with the forest tent caterpillar, the numbers have apparently decreased on the Fernow Experimental Forest at Elkins. Parasites have been noted for the first time this year, with the insect reported on the way down in Pennsylvania due principally to a virus disease. Hatching occurred in Somerset County on April 24, and tents were reported at that time in Franklin County. There was extensive defoliation of wild cherry throughout the southern part of the State and flights were reported occurring by June 19. The general infestation is

ported very heavy in Delaware where the first hatching was April 10 and hatching completed by April 17. There it is statewide on cherry, chokeberry, hackberry, willow, etc. In Maryland it was general in the southern parts by late April, and statewide in early May. Generally distributed from Manchester north to Warren County in New York; it hatched in Orange County on April 8 and around Poughkeepsie on April 16, where the larvae were only one-half inch long by the first of May. Rhode Island, where it hatched by April 17 and pupated around June 5, reports it unusually abundant locally.

GYPSY MOTH (Porthetria dispar) The following statement is from Harry L. Smith, Regional Supervisor, Plant Pest Control Division, ARS, and provides again a summary of the gypsy moth picture for this first 1959 issue of the REPORTER:

"The program designed to progressively eliminate the gypsy moth from its western boundaries was continued in peripheral areas of infestation in New York State. Over 80,000 acres in southeastern Otsego and northeastern Delaware Counties were sprayed with Sevin-paraffin-oil suspension. This cooperative undertaking was conducted by the New York State Department of Agriculture and Markets, the New York State Conservation Department, the New York College of Agriculture and the Plant Pest Control Division, United States Department of Agriculture.

"Eradication efforts were also continued in the isolated infestation in Michigan where about 20,000 acres were sprayed with DDT oil solution by the State and Federal Departments of Agriculture. Within the area of general gypsy moth infestation, control treatments with DDT were reported by cooperating state and town agencies in New York, Connecticut, Massachusetts, and Vermont. Weather and climate during the past winter and spring was generally favorable to gypsy moth development. Some winter kill of eggs above snowline occurred in small localized pots in northern Vermont. There were no reports of larval kill by late spring frost. Early observations on egg hatch, larval development, and subsequent feeding indicate a buildup of infestation in several sections of the generally infested area. Endeavors to develop a synthetic sex attractant for use in gypsy moth trapping will be continued in New Hampshire during the summer."

MISCELLANEOUS INSECTS ON HARDWOODS The birch leaf miner (Fenusa pusilla) has record populations in New York, resulting in complete killing of leaves in some areas; adults first observed near Poughkeepsie on April 18. Adults were abundant in Vermont and laying eggs by May 6; in the Champlain Valley on May 15. Massachusetts reported egg laying in early May. In New Jersey, where damage is greater than usual, it was observed laying eggs on April 25, emerging in mid-May. Argyrotoza semipurpurana defoliation was common on oaks, especially scarlet, scrub, and red in Pennsylvania, and complicated the spotting of tent caterpillar damage. Also in Pennsylvania, membracids (Cyrtolobus puritus, Cyrtolobus sp., and Smilia camelus) are heavy on scarlet oaks in Berks County. The ugly-nest caterpillar (Archips cerasivorana) is common with local outbreaks mostly on cherry in Massachusetts, indicating a recurrence of this pest at about a 10-year cycle. Approximately 3,000 acres of aspen in Essex County, N.Y., have been defoliated by the large aspen tortrix (Archips conflictana) and the fruit tree leaf roller (Archips argyrospila) in combination. New York again reports the satin moth (Stilpnotia salicis) in various locations, light to heavy on Lombardy poplars. There is a general infestation of beech scale (Cryptococcus fagi) throughout the Hudson Valley section and a heavy infestation of about five acres near Warrensburg, N.Y. The solitary oak leaf miner (Cameraria hamadryadella) appears to be as abundant as last year in Massachusetts and is expected to cause extensive leaf browning of white oak. Many weeping willows have been skeletonized in Massachusetts by the imported willow leaf beetle (Plagiodera versicolora).

## FOREST DISEASES

Weather influences the development and seriousness of forest tree diseases. Since it cannot be ignored. some discussion is necessary to better understand the disease situation as reported in this first 1959 issue of the REPORTER. Winter conditions may generate non-pathogenic troubles of trees. Reports of "winter injury" or "wind burn" have accumulated, especially for ornamental conifers and many of the broadleaved evergreens. The amount of rainfall, its distribution, and temperatures strongly influence the appearance, development, prevalence, and seriousness of many diseases. Early development of some diseases may largely determine the amount of damage caused by them, providing later weather conditions are favorable. These and the carryover effects of past weather will be mentioned later.

The following conditions prevailed over much of the Northeast this past winter and spring. Soils were frozen fairly early and remained frozen until late in April. Heavy snow cover existed in many northern areas, but not in the coastal areas of Connecticut and southward. Cold temperatures were fairly constant. Cessation of cold winter temperatures was rather abrupt and, for a large part of our region, occurred about the first of May. Suitable growth temperatures were sustained thereafter with only temporary reversion to unsuitable ones. As a general rule, the spurt of spring growth was delayed for about one week. Good growing conditions existed for the first half of May, but for the latter half rain was deficient over practically the whole area and drought effects began to be evident. Fortunately heavy rains occurred in early June, before the May drought became serious, and a better distribution of rainfall occurred during the month, although early June temperatures were generally below normal. These variations of the weather generally permitted early developmental phases of many rusts but suppress later phases. Foliage diseases have been light or negligible, probably due to the May dryness. So far, the most serious tree diseases seem to be the wilts, with Dutch elm disease reaching serious proportions in widely scattered areas.

### WILTS

Oak wilt (Ceratocystis fagacearum) symptoms are evident. Pennsylvania assembled crews (June 8) for starting its annual oak wilt survey. The oak wilt survey in West Virginia was initiated June 1, but the aerial survey did not start until June 22. A total of 32 trees have been processed to date, which is about par. No predictions are offered at this time.

Dutch elm disease (Ceratocystis ulmi) is evident over wide areas and "hot spots" of infection were observed in the Monroe-Liberty area of southeastern New York State, near Manchester, N.H., and the Simsbury area of Connecticut. Reports of the disease have been received from Pennsylvania, Massachusetts, New Jersey, and West Virginia. The latter stating the disease as very active from Logan in the southwest corner of the State to Martinsburg in the northeastern part. Massachusetts reports that symptoms seem to be appearing earlier than usual.

### FOLIAGE DISEASES

Apparently conditions have not been favorable for the development of many leaf spots and leaf blights. It is expected that they will be less common than usual. Disease information from most collaborators mentions the scarcity of foliage diseases. However, Maryland reports silver and red maple shade trees lightly to moderately infected by leaf spot, and New York reports a necrotic spotting of maple which is unimportant. Shoot blights have not been very noticeable, althoug willow scab was observed doing minor damage at one NewHampshire and one New York

location. The prevalence of sycamore anthracnose is in sharp contrast with last year. This seems to be a general situation for Massachusetts, Pennsylvania, and West Virginia all of which have especially commented on it. Pennsylvania reports sycamores as showing a few tiny dead leaves, probably due to early infections, but with trees now generally well foliated; Massachusetts reports that the early leaf blight stage of sycamore anthracnose has not appeared this year, but that a few cases of anthracnose on Acer platanoides have been reported; also two cases of anthracnose in Tilia sp. where the infection was only on the petiole (Plymouth, Mass.). West Virginia reports oak anthracnose noticeable but light, and sycamore anthracnose as very light. New Hampshire reports less maple and oak anthracnose and less willow blight than usual. Some leaf blotch (Guignardia aesculi) of horse-chestnut has been noted.

RUSTS

White pine blister rust (Cronartium ribicola).--Small recently killed white pines have been noted in scattered locations of New Hampshire, southern Maine, and north-central Massachusetts. Most of the blister rust information came from two reports from New York State. Dr. Hirt's observations in the vicinity of Syracuse, N.Y. revealed quantities of aecia produced in nearby plantations, beginning May 9. The first active pycnia of C. ribicola were observed on June 9. He also submits the following observation: "Due to heavy snowfall early last autumn while the soil was still warm, mice were active and hungry. The result was the worst feeding on blister rust cankers of young trees that I have ever seen." A report from the New York State Forest Pest Control states that aecial production was exceptionally heavy. Experimental plots in the State established last fall and winter indicate that "Acti-dione" may be successfully used in treating infected white pines, but that stronger solutions than those successfully used on western white pines may have to be used. A total of 425,000 acres of control area is scheduled for attention during 1959. Of this acreage, approximately 75,000 acres will require intensive working. The remaining acreage will be examined to locate hazardous Ribes concentrations. In line with Hirt's observations is the following: "Rodents (still unidentified) invaded the St. Lawrence Seaway area during the winter to give aid to the blister rust program. Hundreds of large gooseberries were completely girdled. Unfortunately, girdling was not confined to gooseberries."

Gymnosporangium rusts.--In the New England States a moderately heavy production of telia was noted for Gymnosporangium juniperi-virginianae and G. clavariiforme on red and dwarf cedars, respectively. Dry weather at about this time probably was not very favorable for alternate host infections. A Vermont report relates that abundant telial production occurred during the cool, rainy weather of early June for G. juniperi-virginianae. New Hampshire reported cedar-apple rust galls still discharging spores on June 2 and 3. West Virginia reports that cedar rust "apples" were quite prevalent in the State, as did a similar report from Massachusetts.

Other rusts.--Delaware reports a needle rust of loblolly pine as being unusually heavy; also of receiving inquiries about ash leaf and twig rust and specimens for identification. New Hampshire reports ash leaf rust (Puccinia sparganioides) near salt marshes, but it is not serious. Pine needle rust (probably Coleosporium asterum = C. solidaginis) has been noted generally on red pine plantations in St. Lawrence County, N.Y. Although the disease has been heavy for several years, no mortality has been noted. Maryland reports pine needle rust widespread but usually confined to heavy infestation on only one or two individual trees in any group. Sweetfern blister rust (Cronartium comptoniae is reported on jack pine in the town of Peru, Clinton County, N.Y.

Judging from the reports received it appears that the rusts got off to a good start this year, particularly the canker-forming rusts.

CANKERS

No reports have been received of unusual canker-forming pathogens. Common perennial tree cankers are evident, of course. Bleeding canker of maple (Phytophthora cactorum) is reported from two New Hampshire locations.

ROOT ROTS

During the week of May 4, inspection of Fomes annosus root rot plots maintained by the Northeastern Forest Experiment Station in Massachusetts and New Hampshire revealed very little evidence of new conk formation or renewed growth from old conks. A very small percentage of old infected trees and stumps in central Massachusetts showed resumption of old conk growth. Only a couple of new pinhead-sized "buttons" were observed as new 1959 conks. No new growth of sporophores greater than 1 cm. in extent was observed. The cold weather until May evidently delayed growth activity for at least a week's time. From now on conk production should become increasingly evident. Late fall, from late September to early November, seems to be the best time for observing Fomes annosus fruiting in New England. Delaware reports an increase in red cedar deaths, ascribed to F. annosus, which seems to single out one tree in a group rather than a whole group. New York reports five new locations in thinned red pine plantations; two in Columbia, one in Dutchess and the remainder in Westchester Counties. Verification was by Welch of Cornell. The State Conservation Department and Cornell University have cooperatively employed a graduate student to work on the disease. Mr. Orson K. Miller has been employed as a Research Fellow to work out from the Fox Forest near Hillsboro, N.H. on F. annosus during the summer.

An old conk (1957-1958) was observed on a long-dead black cherry stump on the Harvard Forest in northern Massachusetts. This is of interest because of the few reports of F. annosus fruiting on hardwoods from the Northeast, and it is believed that black cherry (Prunus serotina) may be a new host report for the fungus.

WITCHES'-BROOMS

A heavily infected spot of a rust-caused witches'-broom on Vaccinium (Calyptospora goeppertiana) was observed in the Gilmanton area of New Hampshire. This was the most heavily infected area ever observed by your recorder. Both old and newly-formed brooms were present. The Petersham area of Massachusetts also contains many infected plants.

A center of infection for Apiosporium collinsii on serviceberry was observed west of Gardner, Mass. Such infections are spectacular and usually widely scattered. Old, new, and very recent infections occurred--many with but one leaf of newly opened buds infected.

Taphrina witches'-broom of wild cherry has not been observed in its usual abundance. Perhaps this view will be modified by later observations.

A witches'-broom of willow (cause unknown) noted in 1958 issues of the PEST REPORTER, was again observed in one of its original locations. It appeared that localized spread had occurred.

NURSERY AND PLANTATION DISEASES

Limited information on nursery troubles mostly concerns types of winter injury noted in New Hampshire. Top kill of Japanese larch occurred. This was limited to seedling tips. The late 1958 growth left the seedling tips in a tender unhardened condition and the winter-kill was limited to such unhardened top growt A peculiar root-shearing of 1-year-old balsam fir occurred in the same nursery, resulting in a bushy, paint-brush type of root growth. The cause was attributed to

the deep, hard-frozen soil lasting throughout the winter, with the exception of short-term January thaw. This thaw extended only into the hard frozen underlayer for an inch or so, and quickly became refrozen. The expansion of the refrozen top soil layer caused the roots to be broken off at a definite level, just as if clipped by a pair of shears. This root pruning resulted in little or no death of the seedlings. Some kill by frost heaving was observed in 1-year stock in unmulched nursery beds.

We have little information on plantation diseases, except of continued damage by Rhabdocline and Adelopus leaf casts in Douglas-fir Christmas tree plantings. A report from Vermont of Armillaria mellea in a vigorously growing red pine plantation in the Groton State Forest evidently is responsible for windthrown trees. The root rot has already accounted for a considerable loss in parts of the plantation and shows no signs of waning. New York reports Stereum sanguinolentum (red heartrot fungus) identified by samples from bleeding cankers found on pruned Norway spruce in eastern Columbia County; also on two other plantations which had been pruned. It thus appears that this fungus could become troublesome as pruning of spruce plantations increases.

MISCELLANEOUS DISEASES

Pennsylvania reports a needle cast disease, probably Hypoderma lethale, as severe on pitch pine in Clinton County. The trees have been growing poorly for decades and are heavily infested by pine spittlebug. Among the miscellaneous troubles reported from Massachusetts is Diplodia (Sphaeropsis) tip blight of Austrian pine (Wenham, Mass.) and a needle cast on white pine (Shirley, Mass.). New York reports two unidentified diseases, one of which caused considerable mortality of young white pine in three different areas of Clinton County and in one area in Essex County. The other disease, manifested as bleeding butt cankers of young and pole-sized white pine, also caused mortality. The latter condition has been noted from several areas scattered throughout the State.

DIEBACKS

The general picture of oak dieback (excluding the oak mortality in north-central Pennsylvania and West Virginia centers) is that it is widely distributed in scattered individual trees. Dead twigs and branches occur with a sharply defined limit between dead and living branches. Stagheads are only occasionally observed. Ash dieback continues to be an item of concern. Its cause has not yet been definitely determined. It is requested that reports of unusual amounts of ash dieback be sent in to the REPORTER. Maple dieback, although widespread, is more intense in the New England States, and was decidedly less in north-central and western Pennsylvania and south-central and western New York, according to observations by your recorder. It seems especially severe along U. S. Route 1 in New Hampshire, although many bad spots of dieback of sugar maples are scattered throughout New England. It appears that the 1957 drought intensified the trouble, perhaps sometimes initiated by repeated insect defoliation, and that the trouble was carried over into 1958. Some betterment may be evident this year, provided extended drought periods do not occur. However, the trouble continues in New England as evidenced by leaf scorch conditions in many dieback-infected maples. Many such trees are infected by Armillaria mellea. Vermont reports maple dieback symptoms are currently especially pronounced throughout the State. Without doubt, the most conspicuous and widespread tree troubles in the Northeast at this time are maple dieback and Dutch elm disease. Dieback of sweetgum is in evidence in parts of New Jersey, Delaware, and Maryland. This appears to be part of the sweetgum blight complex.

NON-PATHOGENIC AND ENVIRONMENTAL TROUBLES

Winter damage, manifested as winter kill (cold), winter drying, or winter burn (excessive water loss without replenishment due to frozen soil), was more extensive and severe than for many years. The trouble was widespread throughout the Northeast and was mentioned by nearly all collaborators. Ornamentals, both coniferous and broadleaved, were involved. Damage to the following plants has been noted: cedars, hemlock, althea, spirea (particularly bumalda types), rhododendron, mock orange, privet, beauty bush, weigela, yew, holly, laurel, arborvitae, dogwood, spruce, white pine, maple, and others. According to Massachusetts, it was not only recently transplanted material which was affected but also trees which had been established for 10 years; even turf grass has been injured. Most damage occurred to exposed plants, planted as ornamentals, or isolated plants as in open fields and pastures. Little or no damage has been reported in forest stands. Partial kill and scattered branch killing, the presence of dead plants near and in the midst of unaffected plants, and delayed killing, present many puzzling aspects. New York reports winter injury as very heavy on conifers and without question the severest for many years. West Virginia reports winter damage was noticeable on ornamental hedges of hemlock and privet and very severe on sour cherries. The only noticeable damage to forest trees was to red pine in Randolph and Pendleton Counties in the State. From Delaware comes the report that loblolly pine suffered severe frost and wind burn last winter and that recovery is noticeably slow. To close this discussion of winter damage are quotations of Dr. Hirt from observations made in the vicinity of Syracuse, N.Y.: "Apparently many woody plants did not 'harden' prior to early winter freezing and were partly killed above snowline; (1) Eastern white cedar--many trees killed, others killed to snowline. I suspect those killed were in very dry soils; (2) Redbud--some were injured, others frozen, the bark and xylem split, death occurred; (3) Native American holly--showed some foliage freez Trees that normally flower each year produced no flower buds this spring; (4) Ornamental yews--spotty injury. Plants on dry sites were occasionally killed."

Other non-pathogenic troubles apparently include the following. Maryland reports severe drought and dry winds caused excessive mortality to spring plantings of loblolly pine, and many young shade trees of all species show drought damage. New York reports salt damage appears to increase each year and public concern for this problem is increasing. New Hampshire reports needle browning of pines and hemlocks, probably due to salt damage. Dying balsam fir is common in Vermont and New Hampshire this year. Presumably the trouble is a complex of insect feeding, principally by Monochamus, followed by infection by several weak pathogens. An apparently non-pathogenic needle cast of red spruce is common in the Green Mountain area of Vermont. This does not seem to be related to site or exposure. Canadian pathologists have also noted a similar needle cast in red and black spruce in New Brunswick and Newfoundland. White pine needle blight is evident in slight amounts in the New England States, but is not expected to cause much concern unless it becomes intensified.

Some recent publications which might be of interest to readers are:

(1) Plant Disease Reporter

1959. An annotated bibliography of 1958 literature on rootrot and related literature. [although mostly on agricultural or orchard crops, it contains some scattered references dealing with forest tree diseases.] Plant Dis. Rptr., Supp. 256, June 15.

(2) Miller, H. C. and Silverborg, S. B.

1959. Maple tree problems. State University, College of Forestry, Tree Pest Inform. Serv. Leaflet No. 12, 18 pp., illus. [Syracuse, N.Y.]

(3) Pirone, P. P.

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